



(3) EOT / Amdt A # 4  
E. Burns  
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PATENT  
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IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicant: SRIDHAR; Balakrisnan et al.

Appl. No.: 09/677,344

Group: 3662

Filed: October 2, 2000

Examiner: CUNNINGHAM, Stephen

For: THREE STAGE OPTICAL AMPLIFIER HAVING  
FLAT SPECTRAL GAIN

REPLY UNDER 37 C.F.R. § 1.111

**RECEIVED**

MAR 05 2002

**GROUP 3600**

Assistant Commissioner for Patents  
Washington, DC 20231

February 25, 2002

Sir:

In reply to the Office Action dated October 23, 2001, the following amendments and remarks are respectfully submitted in connection with the above-identified application. Since the three month response period ended on a Saturday this Reply is considered timely without payment of a time extension fee.

AMENDMENTS

IN THE ABSTRACT OF THE DISCLOSURE:

Please replace the Abstract with the following:

A1 --A three stage optical amplifier is disclosed having a substantially flat gain profile. The amplifier includes a variable optical attenuator coupled between second and third stages of the amplifier and a dispersion compensating element. The attenuation of the optical attenuator is adjusted in accordance with the loss across dispersion compensating element and the optical power input to the amplifier to thereby obtain a substantially flattened gain profile. An offset value can also be used to refine the variable optical attenuator control and minimize nonflatness. The first and second stages are preferably pumped to provide high gain and a low noise figure and the third stage is preferably pumped to provide a high optical conversion efficiency. In an additional example, received optical powers associated with each of the channels in a WDM system are monitored and the attenuators within each amplifier in the system are controlled so that the received powers are substantially equal.--